Viewpoint

A serostatus-based approach to HIV/AIDS prevention and care in Africa

Kevin M De Cock, Elizabeth Marum, Dorothy Mbori-Ngacha

Africa's HIV/AIDS epidemic has stimulated calls for increased resources,[1–3] science-based public-health interventions,[4–6] and access to treatment.[2,7] The declaration of commitment[8] from the United Nations General Assembly Special Session on HIV/AIDS in 2001 called for a 20% reduction in the proportion of infants infected with HIV by 2005, and 50% by 2010 (in this article, HIV is used to mean HIV-1 and HIV-2). Describing lack of access to antiretroviral therapy as a global emergency, WHO and UNAIDS launched an initiative to treat 3 million people by 2005.[7]

To address prevention and care, WHO estimated that up to 180 million individuals per year will need HIV testing by 2005.[9] Current practice around HIV testing, counselling, and consent is an obstacle to scale-up of services and attainment of targets. How to use testing is perhaps the most challenging question in HIV/AIDS policy today. We argue that universal voluntary knowledge of HIV serostatus should be a prevention goal and that facilitation of HIV testing is central to responding effectively to the epidemic in Africa.

Rights, liberties, and informed consent

HIV testing raises concerns about stigma and infringement of the rights of HIV-infected people. Central issues are autonomy and privacy, or, clinically, informed consent and confidentiality. Outside of health care, diagnosis of HIV infection is self-initiated. In clinical practice, consent is assumed for non-invasive investigations that form part of standard care. The provision of information with ability of patients to decline HIV testing, informed right of refusal or the opt-out approach, balances autonomy with usual medical practice and meets ethical standards of informed consent.

Advocates for care have emphasised social and economic rights, including the right to treatment, citing the 2001 declaration of commitment[8] and other covenants and conventions, including those relating to women and children. Focusing on positive aspects of rights rather than negative consequences of public health action, and strengthening efforts to prevent discrimination, offer synergy between science-based HIV prevention and increased access to care. Proposals to ease HIV testing policies satisfy preconditions for potentially burdensome public health action required by the Siracusa principles.[10] These are that the intervention (HIV testing) should be sanctioned by law, aimed at a legitimate public health goal, necessary to achieve that goal, no more intrusive or restrictive than necessary, and non-discriminatory in application.

Placing HIV testing at the centre of prevention and care

HIV testing is done for different purposes in different contexts, and application of one model—voluntary counselling and testing—to all settings is inappropriate. We proposed different categories of testing in an earlier paper.[11] Mandatory testing is not further discussed here.

HIV testing and prevention counselling

Self-initiated HIV testing and prevention counselling allows people to voluntarily learn their status and reduce risk of acquisition or transmission of HIV infection. Ammann[5] recently advocated universal voluntary testing irrespective of risk factors, and Frieden, commissioner of health for New York City, said everyone who had ever had sex or used drugs should know their serostatus.[12] A public health goal should be for every African adolescent and adult to know his or her HIV status, and to be retested in case of potential exposure.

The panel shows an approach to HIV prevention based on knowledge of infection status. The prevention acronym ABC (abstinence, be faithful, use condoms) ignores the possibility that partners in a relationship might unknowingly have different HIV serostatuses. In Kisumu, Kenya, the prevalence of HIV infection in women aged 15–19 years in 1997–98 was 23%, and in those aged 20–24 years reached 38·3%.[13] Prevalence in men of the same ages was 3·5% and 12·3%, respectively.[13] Stable

Messages for a serostatus approach to HIV/AIDS prevention and care in Africa

- Your undiagnosed HIV infection can give your partner HIV/AIDS
- Your partner's undiagnosed HIV infection can give you HIV/AIDS
- Undiagnosed HIV infection in pregnant and breast-feeding women can give children HIV/AIDS

Therefore

1. Learn your HIV status
2. Disclose your HIV status to your partner before you have sex
3. Never have unprotected sex with someone who is HIV-positive or whose HIV status you are uncertain of
4. If you are HIV-positive, abstain from sex or use a condom when having sex
5. If you are HIV-positive, seek medical advice, care, and support
6. Learn your HIV status before or during pregnancy, and, if you are HIV-positive, seek services to prevent pregnancy or transmission to your infant

Lancet 2003; **362:** 1847–49

US Centers for Disease Control and Prevention Kenya, Nairobi, Kenya (K M De Cock MD, E Marum PhD, D Mbori-Ngacha M Med); **and University of Kenya, Nairobi** (D Mbori-Ngacha)

Correspondence to: Dr Kevin M De Cock, PO Box 30137, Nairobi, Kenya
(e-mail: kdecock@cdcnairobi.mimcom.net)

relationships in which one partner is HIV-seropositive might account for many new HIV infections in a mature, generalised epidemic.[14] In rural Uganda, the age-specific incidence of HIV infection in seronegative women married to HIV-infected men was 106 times that among seronegative women whose spouses were uninfected.[15] Counselling and testing of couples together can help to make both partners aware if one of them is HIV-infected, to protect the seronegative partner in such relationships, and thus reduce the risk of their children being orphaned.

Different service models for HIV testing and prevention counselling include free-standing sites, integration into health facilities, and community-based and mobile services. Clients' needs include belief in the quality of testing, confidentiality, and convenience. Uptake has been enthusiastic in different African countries[16] despite limited treatment options. Because most clients are well and uninfected, HIV testing and prevention counselling is not the primary avenue for expansion for antiretroviral drug access, efforts for which should initially concentrate on clinical settings attended by symptomatic persons at greatest risk for mortality.

Routine HIV testing

Routine testing refers to HIV testing done as an integral part of a preventive health service.

Prevention of mother-to-child transmission

African programmes to reduce mother-to-child transmission have been hampered by low uptake of HIV testing and associated interventions.[17,18] The basis of the opt-out approach to HIV testing[19–21] recommended by the US Institute of Medicine[22] is to do antenatal testing unless women actively refuse. All women receive standard information but emphasis is on post-test counselling for those infected with HIV. In North America, this approach resulted in increased uptake of testing,[19–21] although additional efforts are required to improve other components of African programmes.

Sexually transmitted infection clinics

In Kenya, surveillance showed a 2–3 fold higher HIV prevalence in clients at sexually transmitted infection clinics than in pregnant women.[23] Clients are routinely tested for syphilis and other infections, since attendance is assumed to show a desire for diagnosis and care. Treatment of sexually transmitted infection is an important strategy in prevention of HIV,[24] and should be combined with routine HIV testing and counselling on risk reduction, especially to help infected people not to transmit to others.[25]

Increased emphasis on the duty of practitioners to assist infected people in notifying their contacts, or to do so on their behalf, is consistent with international guidelines; this principle also applies to all contexts of HIV testing discussed.

Diagnostic HIV testing

Diagnostic testing refers to confidential testing of patients with disease potentially attributable to HIV. Different barriers to testing have deprived African patients of affordable interventions such as prophylaxis for opportunistic infections[26] and advice about prognosis and prevention. By seeking medical assistance, patients implicitly state their desire for diagnosis and care. Frequently, HIV tests are only done to confirm clinically obvious diagnoses, or as a last resort after exclusion of improbable conditions. Anecdotal reports suggest that patients are sometimes tested without their knowledge but results are not shared with them. Professional organisations in Africa have been silent on such practices, and the rights of patients to an accurate diagnosis and the duty of physicians to provide and respond to diagnosis have been ignored.

People who are most immediately in need of antiretroviral therapy and easy to reach are symptomatic patients attending health facilities. Findings from urban Malawi[27] showed that 70% of medical and 36% of surgical patients were infected with HIV. Overall, 31% of cases of tuberculosis in Africa are attributable to HIV infection;[28] the prevalence of HIV among tuberculosis patients is generally about 3·5 times that suggested by local antenatal surveillance.[29] In Abidjan, 8% of children admitted to hospital and 20% of children who died were infected with HIV.[30,31] Under such conditions, we believe that universal diagnostic HIV testing is indicated among patients with tuberculosis or in hospital—in the same way that other important blood tests are applied for investigation and care—backed up by post-test counselling and clinical and prevention support.

Harnessing new technology

Simple, rapid HIV tests providing immediate results without need for running water, electricity, or laboratories have greatly facilitated practice.[32,33] Clients can see their own tests, increasing trust and reducing errors, and trained non-laboratory staff can do tests accurately. Rapid tests using oral fluids could further simplify and expand testing, perhaps allowing HIV testing of sputum from people with suspected tuberculosis,[34] and eliminating skin puncture. These and future developments, such as self-administered tests, will challenge orthodoxy further, and a balance between autonomy and protection against coercion will be needed.

Conclusions

Prevention and care in Africa need a serostatus-based approach (panel) aimed at universal voluntary knowledge of serostatus, simplified clinical testing, and prevention of discrimination. Defining different categories of testing, consent, and counselling is necessary. International agencies should reassess their HIV testing policies on the basis of public health needs and targets, and the declared global emergency relating to treatment. Of three possible positions, staying silent will abdicate leadership, and endorsing traditional practice will reinforce barriers to prevention and care; only strong guidance to promote and facilitate HIV testing will allow urgently-needed expansion of treatment and prevention services.

The opinions and statements in this article are those of the authors and do not represent the official policy, endorsement, or views of the US Centers for Disease Control and Prevention, the US Public Health Service, or the US Department of Health and Human Services.

Conflict of interest statement

None declared.

Contributors

K M De Cock provided the concept and was primary author of the paper and its revisions. E Marum and D Mbori-Ngacha participated in and contributed to policy discussions leading up to this paper, and participated in writing and revisions.

Acknowledgments

We thank international colleagues for discussion.

References

1 Clinton WJ. Turning the tide on the AIDS pandemic. *N Engl J Med* 2003; **348:** 1800–02.
2 Editorial. A positive result for AIDS. *Lancet* 2003; **361:** 539.

3 The global fund to fight aids, tuberculosis and malaria. http://www.globalfundatm.org (accessed 27 Oct, 2003).
4 Gayle HD. Curbing the global AIDS epidemic. *N Engl J Med* 2003; **348:** 1802–05.
5 Ammann AJ. Preventing HIV. *BMJ* 2003; **326:** 1342–43.
6 Pisani E, Garnett GP, Brown T, et al. Back to basics in HIV prevention: focus on exposure. *BMJ* 2003; **326:** 1384–87.
7 Frankish H. New WHO chief promises greater commitment to HIV/AIDS. *Lancet* 2003; **362:** 297–98.
8 UNAIDS. Follow-up of the 2001 United Nations Special Session on HIV/AIDS. Progress report on the global response to the HIV/AIDS epidemic, 2003. Geneva: UNAIDS, 2003.
9 WHO. The right to know. New approaches to HIV testing and counseling. Geneva: WHO, 2003.
10 Gruskin S, Loff B. Do human rights have a role in public health work? *Lancet* 2002; **360:** 1880.
11 De Cock KM, Mbori-Ngacha D, Marum E. Shadow on the continent—public health and HIV/AIDS in Africa in the 21st century. *Lancet* 2002; **360:** 67–72.
12 *New York Times* (New York), August 9, 2003.
13 Buve A, Carael M, Hayes RJ, et al. Multicentre study on factors determining differences in rate of spread of HIV in sub-Saharan Africa: methods and prevalence of HIV infection. *AIDS* 2001; **15** (suppl 4)**:** S5–S14.
14 Robinson NJ, Mulder D, Auvert B, Whitworth J, Hayes R. Type of partnership and heterosexual spread of HIV infection in rural Uganda: results from simulation modeling. *Int J STD AIDS* 1999; **10:** 718–25.
15 Carpenter LM, Kamali A, Ruberantwari A, Malamba SS, Whitworth JA. Rates of HIV-1 transmission within marriage in rural Uganda in relation to the HIV serostatus of the partners. *AIDS* 1999; **13:** 1083–89.
16 Marum E, Owiti A, Nganga L, et al. Rapid increase in utilization of voluntary counseling and testing through a community based model in Kibera slum, Nairobi, Kenya. XIV International AIDS Conference, Barcelona, Spain, 2002. Abstract MoORF1077.
17 Temmerman M, Quaghebeur A, Mwanyumba F, Mandaliya K. Mother-to-child HIV transmission in resource poor settings: how to improve coverage? *AIDS* 2003; **17:** 1239–42.
18 Stringer EM, Sinkala M, Stringer JS, et al. Prevention of mother-to-child transmission of HIV in Africa: successes and challenges in scaling-up a nevirapine-based program in Lusaka, Zambia. *AIDS* 2003; **17:** 1377–82.
19 US Centers for Disease Control and Prevention. HIV testing among pregnant women—United States and Canada, 1998–2001. *MMWR Morb Mortal Wkly Rep* 2002; **51:** 1013–16.
20 Health Canada. Transmission of HIV from mother to child. HIV/AIDS Epi Update, April 2002, 2–8.
21 Stringer EM, Stringer JSA, Cliver SP, Goldenberg RL, Goepfert AR. Evaluation of a new testing policy for human immunodeficiency virus to improve screening rates. *Obstet Gynecol* 2001; **98:** 1104–08.
22 Institute of Medicine. Reducing the odds. Preventing perinatal transmission of HIV in the United States. Washington, DC: National Academy Press, 1999.
23 Joesoef MR, Cheluget B, Marum LH, et al. Differential prevalence in women and men who attended sexually transmitted disease clinics at HIV sentinel surveillance sites in Kenya, 1990–2001. *Int J STD AIDS* 2003; **14:** 193–96
24 US Centers for Disease Control and Prevention. HIV prevention through early detection and treatment of other sexually transmitted diseases—United States. Recommendations of the Advisory Committee for HIV and STD Prevention. *MMWR Morb Mortal Wkly Rep* 1998; **47:** RR12.
25 Janssen RS, Holtgrave DR, Valdiserri RO, Shepherd M, Gayle HD, De Cock KM. The serostatus approach to fighting the HIV epidemic: prevention strategies for HIV-infected individuals. *Am J Public Health* 2001; **91:** 1019–24
26 Grant AD, Kaplan JE, De Cock KM. Preventing opportunistic infections among HIV-infected adults in African countries. *Am J Trop Med Hyg* 2001; **65:** 810–21.
27 Lewis DK, Callaghan M, Phiri K, et al. Prevalence and indicators of HIV and AIDS among adults admitted to medical and surgical wards in Blantyre, Malawi. *Trans R Soc Trop Med Hyg* 2003; **97:** 91–96.
28 Corbett EL, Watt CJ, Walker N, et al. The growing burden of tuberculosis. Global trends and interactions with the HIV epidemic. *Arch Intern Med* 2003; **163:** 1009–21.
29 Cantwell MF, Binkin NJ. Impact of HIV on tuberculosis in sub-Saharan Africa: a regional perspective. *Int J Tuberc Lung Dis* 1997; **1:** 205–14.
30 Vetter KM, Djomand G, Zadi F, et al. Clinical spectrum of human immunodeficiency virus disease in children in a West African city. *Pediatr Infect Dis J* 1996; **15:** 438–42.
31 Lucas SB, Peacock CS, Hounnou A, et al. Disease in children infected with HIV in Abidjan, Cote d'Ivoire. *BMJ* 1996; **312:** 335–38.
32 Brattegaard K, Kouadio J, Adom M-L, Doorly R, George JR, De Cock KM. Rapid and simple screening and supplemental testing for HIV-1 and HIV-2 infections in West Africa. *AIDS* 1993; **7:** 883–86.
33 Stetler HC, Granade TC, Nunez CA, et al. Field evaluation of rapid HIV serologic tests for screening and confirming HIV-1 infection in Honduras. *AIDS* 1997; **11:** 369–75.
34 Talbot EA, Hone NM, Moffat HJ, et al. The validity of HIV testing using sputum from suspected tuberculosis patients, Botswana, 2001. *Int J Tuberc Lung Dis* 2003; **7:** 710–13.